East Africa Steel Market Overview

OVERVIEW DOCUMENT

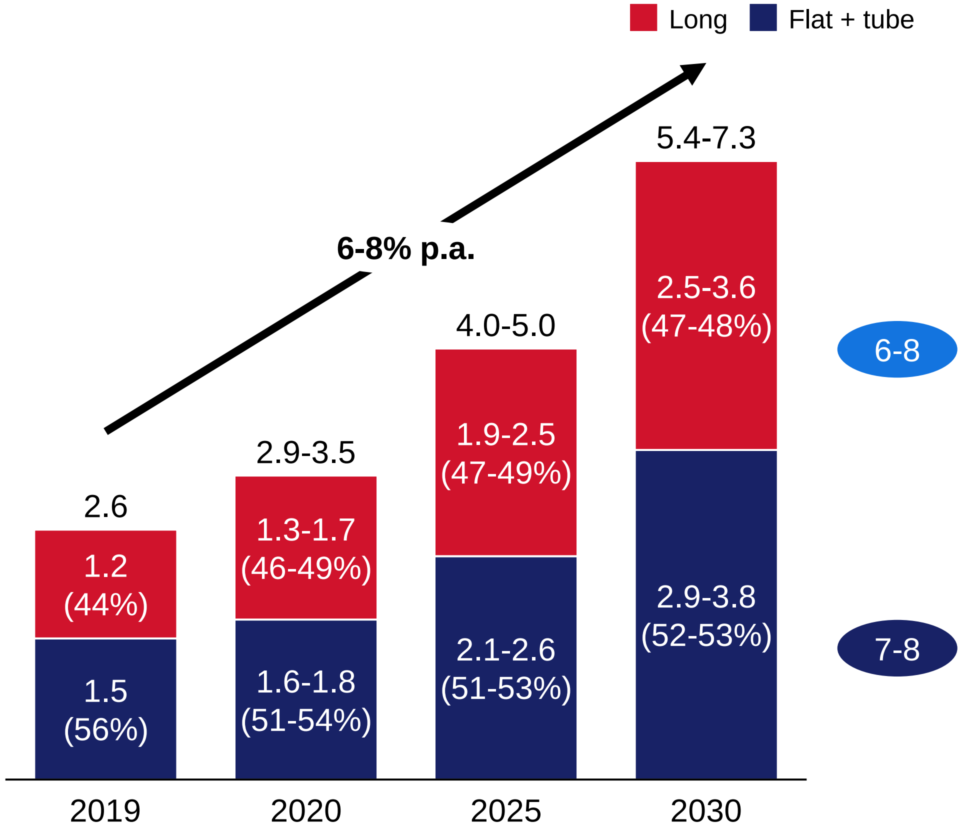
OCT 2020

This study has been funded by UK aid from the UK Government; however, the views expressed do not necessarily reflect the UK government's official policies

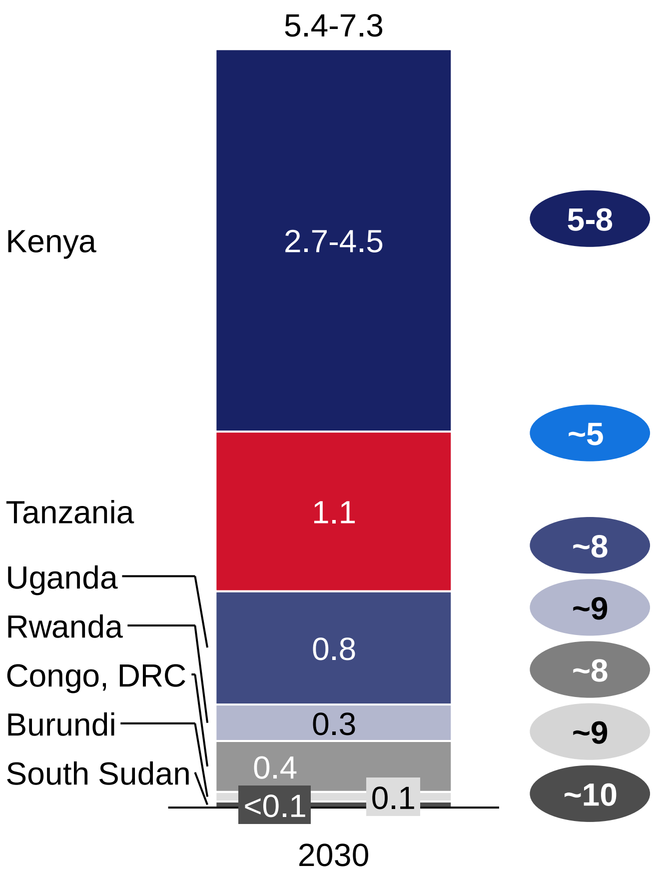
Demand for finished steel in Eastern Africa is expected to double by 2030, despite COVID

XX 2020-30 CAGR, %

Demand for finished steel in Eastern Africa[1] by product[2], 2019-2030, Mn MT



2030 steel demand in focus countries[2], Mn MT



Long steel demand will account for ~50% of the demand in 2030

Demand contracted in 2020 as a result of COVID, but is expected to recover post 2021

Kenya is expected to remain the largest market with 50-60% of overall demand by 2030

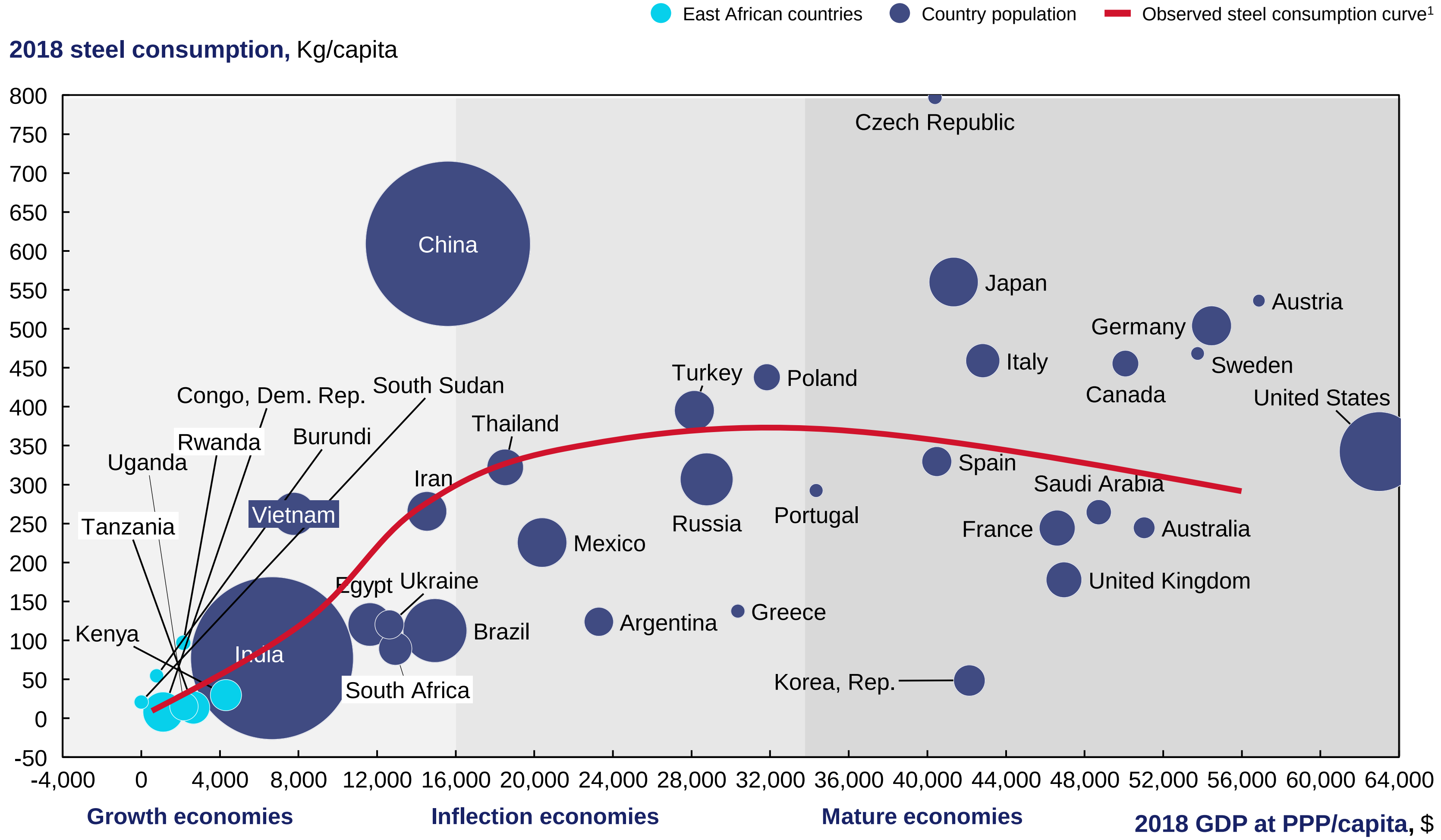
NOTE: The rest of Eastern Africa could be understated if the bottom up approach follows the trend in Kenya, where James F. King's estimates are ~50% of bottom up estimates

1. Kenya, Uganda , Tanzania, East DRC, Burundi, Rwanda, South Sudan
2. Kenya long steel figures were calculated bottom up based on multiple expert interviews; the rest are based on James F. King`, World Steel Association historical figures and United Nations Comtrade Statistics. Forecasts are calculates using the real GDP forecast changes from the IMF world economic outlook

Source: IMF World Economic Outlook; James F King; McKinsey Basic Materials Institute

Steel consumption in EA is at the cusp of growth based on global steel consumption trends

Steel per capita consumption vs GDP per capita, PPP



1. General steel intensity curve based on findings by Louis Schorsch, published in McKinsey Quarterly.
2. Does not include South Sudan (-0.7%) and Burundi (3.3%)

Source: J.F. King; World Bank; McKinsey Quarterly; McKinsey Global Institute analysis

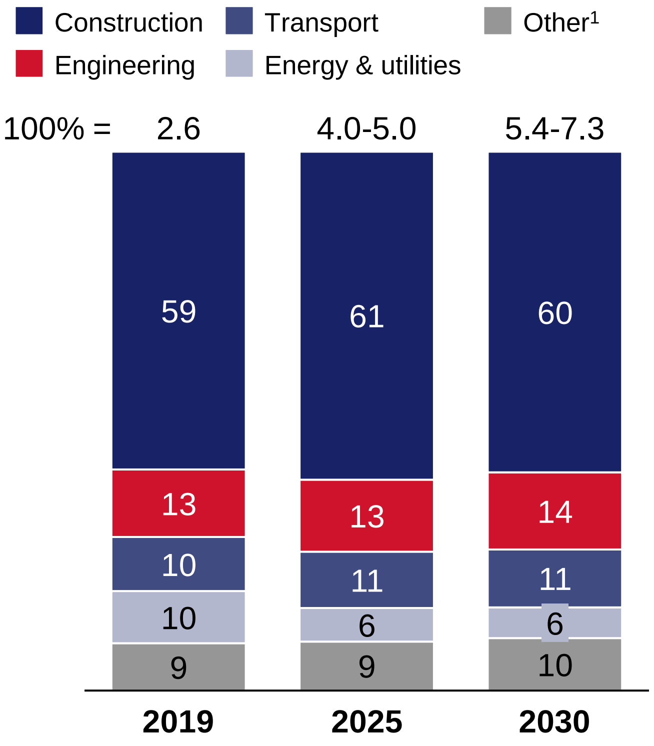
Steel demand is strongly dependent on GDP

Most East African countries' steel consumptions are expected to grow significantly based on observed steel consumption vs. GDP per capita trends

COVID will impact the construction sector, and consequently the steel sector; however, sector contraction is expected only in the short-term

Steel demand will be driven by construction…

Total steel demand forecast by end-use sector across Eastern Africa, Mn MT



… which will be impacted by COVID…

KENYA EXAMPLE

Sector	GDP today by sector, Bn	GDP shrinkage,%
Agriculture	33	2 - 6
Transport and storage	8	32 - 60
Manufacturing	8	7 - 16
Wholesale & retail	7	16 - 60
Health and social services	6	0.2 - (1.2)
Financial services	6	3 - 9'
Construction and real estate	5	**2 - 3**
Other[2]	24	

… however likely only in the short term

In Eastern Africa, construction will not be severely affected by COVID-19 in the long-run. Investors will largely defer investments (by months) as opposed to cutting off investments altogether

Ex-Senior Vice President at a Global Steel Company with operations in Eastern Africa

I don't expect COVID to have a significant long-term impact on construction sector, with time demand will recover

Ex-General Manager (Operations) at a leading Kenyan Steel Company

1. Includes electrical, packaging, durables and other sectors
2. Other includes: Professional, scientific and technical activities, Service activities, Activities of households as employers; undifferentiated goods- and services producing activities of households for own use, Electricity, gas, steam and air conditioning supply, Water supply; sewerage, waste management and remediation activities, Administrative and support service activities, Activities of extraterritorial organizations and bodies, education, ICT, Arts and Mining

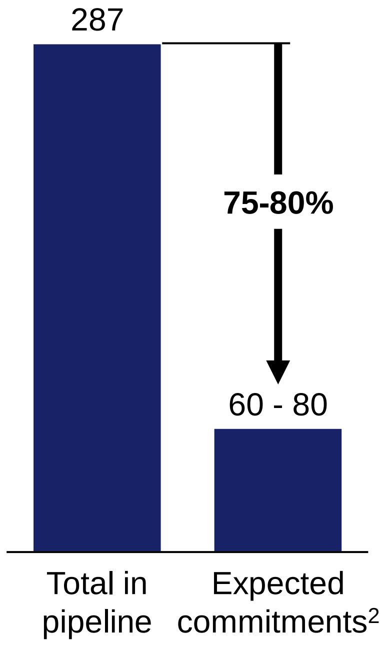
Source: IMF World Economic Outlook; James F King; McKinsey Basic Materials Institute, McKinsey Global Institute, Tackling Corona Virus in Kenya (McKinsey)

Long term construction demand is underpinned by infrastructure projects in Eastern Africa's pipeline

Energy &Utilities | Real estate | Transport | Social Infrastructure

Eastern Africa infrastructure project pipeline[1] (2021 – 2025), USD Billions	Energy &Utilities	Real estate	Transport	Social Infrastructure	Total	No. of Projects #	Share of total EA projects, %
Tanzania	105	26	15	1	146	136	34
Kenya	23	13	25		61	123	31
Congo (DRC)		10	2		37	28	7
Uganda	22	3	3	1	34	87	22
Rwanda	2	5			8	29	7
Total	177	57	49	3	287	403	100

EA infrastructure project pipeline (2021 – 2025), USD Billions



While there are ~USD 290 billion worth of infrastructure projects in the pipeline, **only USD 60-80 billion are expected to be committed based on historical experience**

Notable projects in the pipeline include Kenya's Standard Gauge Railway (Northern Corridor), Tanzania LNG Hub, and multiple real estate projects.

1. Information for Burundi and South Sudan not available
2. Estimated based on historical data, for the five years from 2014-18, only ~USD 73 billion worth of infrastructure projects were committed

Source: McKinsey Infrastructure Projects Analytics Tool, CIC Global Data, MEED projects, ICA Annual report

Largest upcoming infrastructure projects in East Africa[1]

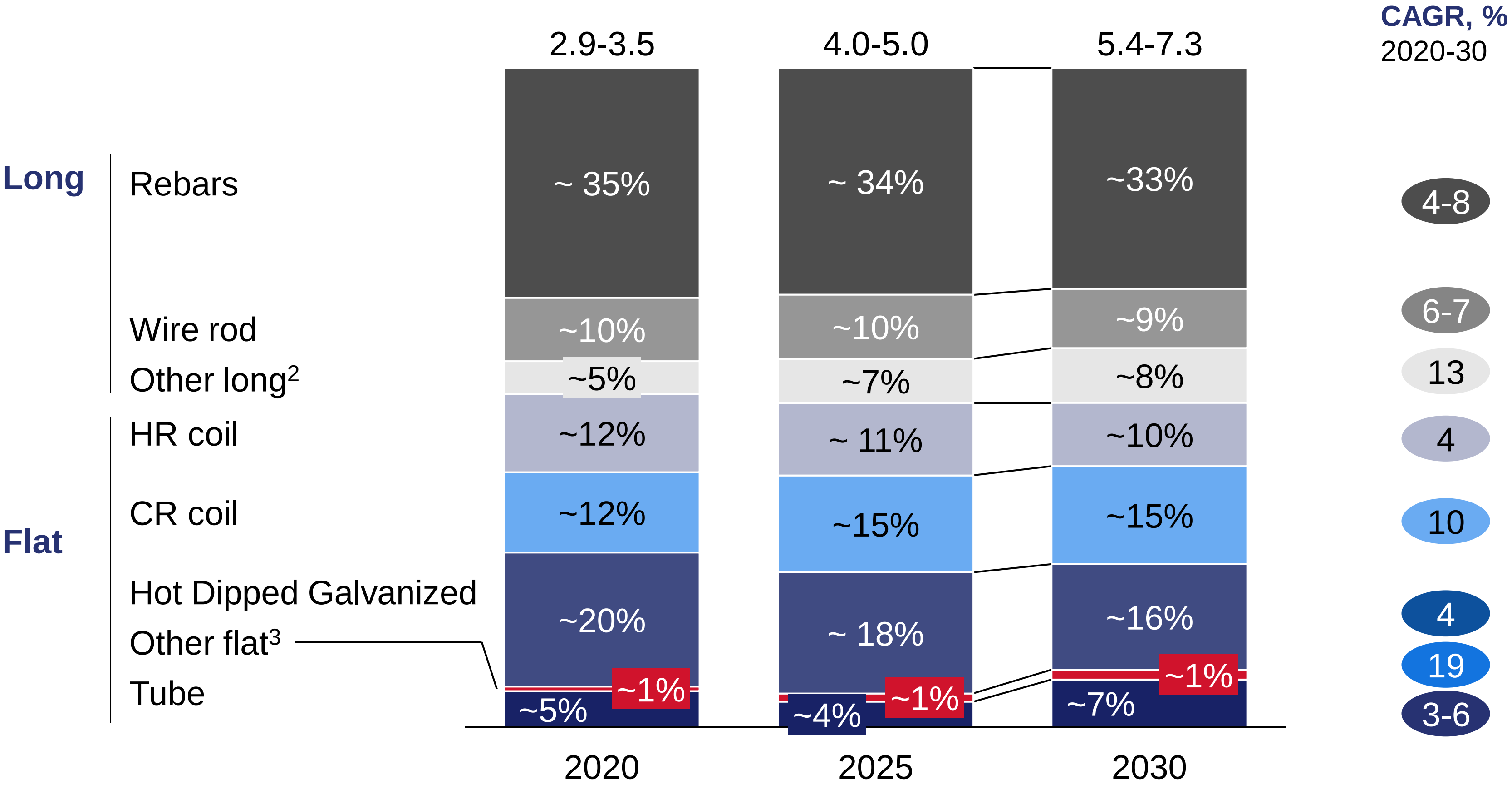
	Country	Project Name	Sector	Project Stage	Project Owner	Award year	Expected completion Year	Value, USD bn
1	Tanzania	Statoil / BG Group / Ophir / ExxonMobil – LNG Hub Development – Tanzania	Oil & Gas	Study	BG Group Ltd, Equinor ASA, Exxon Mobil Corp, Ophir Energy Ltd	2022	2028	30,0
2	Tanzania	EPZA/YPAIIC – Tanzania-China Logistics Center – Tanzania	Commercial real estate	Study	Export Processing Zones Authority, Yiwu Pan-African International Investment Corporation	2022	2028	24,6
3	Kenya	KRC – Standard Gauge Railway – Kenya	Railways	Study	Kenya Railways Corporation (KRC)	2021	2025	21,5
4	Tanzania	RDS/OPHR/PE – Deep Sea Block 1-3-4 Development – Tanzania	Oil & Gas	Study	Ophir Energy Ltd, Pavilion Energy Corp, Royal Dutch Shell Plc	2022	2028	20,0
5	Congo (DRC)	SNEL – Inga III Basse Chute Hydroelectric Power Plant 11050 MW – Democratic Republic of the Congo	Power	Study	Congo's National Electricity Society (Snel)	2023	2030	18,0
6	Congo (DRC)	Rendeavour – Kiswishi Urban Development – Katanga	Residential real estate	Study	Rendeavour	2022	2027	10,0
7	Kenya	AUSEFID – Mombasa to Lagos Road Development – Kenya	Roads	Study	The African Union Commission	2021	2025	5,5
8	Uganda	Total/TLW/CNOOC – EA-1 and EA-1A Oil Field Development – Central Region	Oil & Gas	Study	China National Offshore Oil Corp, Total E&P Uganda BV, Tullow Oil Plc	2021	2025	5,0
9	Rwanda	RDB – Green City Mixed-Use Development – Rwanda	Residential real estate	Design	Rwanda Development Board	2022	2025	5,0
10	Kenya	KNEB – Nuclear Power Plant 600 MW – Kenya	Power	Study	Kenya Nuclear Electricity Board	2022	2036	4,8
11	Kenya	GoK – Makongeni Residential Community – Nairobi Area	Residential real estate	Study	Government of Kenya	2023	2025	4,5
12	Tanzania	NDC – Engaruka Basin Soda Ash Extraction Plant – Arusha	Process Industries	Study	National Development Corporation, Tanzania	2022	2025	4,0
13	Tanzania	TCIMR – Liganga Iron Ore and Mchuchuma Coal Mine Development – Njombe	Power	Design	Tanzania China International Mineral Resources Limited	2021	2023	3,5
14	Uganda	Total/CNOOC/UNOC/TPDC – East African Crude Oil Pipeline – Uganda	Oil & Gas	Study	CNOOC Ltd, Tanzania Ministry of Energy and Minerals, Tanzania Petroleum Development Corp, Total E&P Uganda BV, Uganda Ministry of Energy and Mineral Development, Uganda National Oil Co	2021	2024	3,5
15	Uganda	MEMD/UNOC – Albertine Graben Refinery – Western Region	Oil & Gas	Design	Ministry of Energy & Mineral Development, Uganda, Uganda National Oil Co	2021	2023	3,5

1. Includes Kenya, Uganda, Tanzania, DRC, Burundi, Rwanda and South Sudan

Source: IPAT - Infrastructure Projects Analytics Toll, leveraging CIC GlobalData

Rebars and HDG are expected to continue to drive the largest share of demand through 2030

Demand for finished steel in Eastern Africa[1] by product, 2019 -2030 Mn MT



1. Kenya, Uganda , Tanzania, East DRC, Burundi, Rwanda, South Sudan
2. Includes railway track material, sections, other bars
3.Includes tinplate and plate, welded tube

Source: IMF World Economic Outlook; James F King; McKinsey Basic Materials Institute

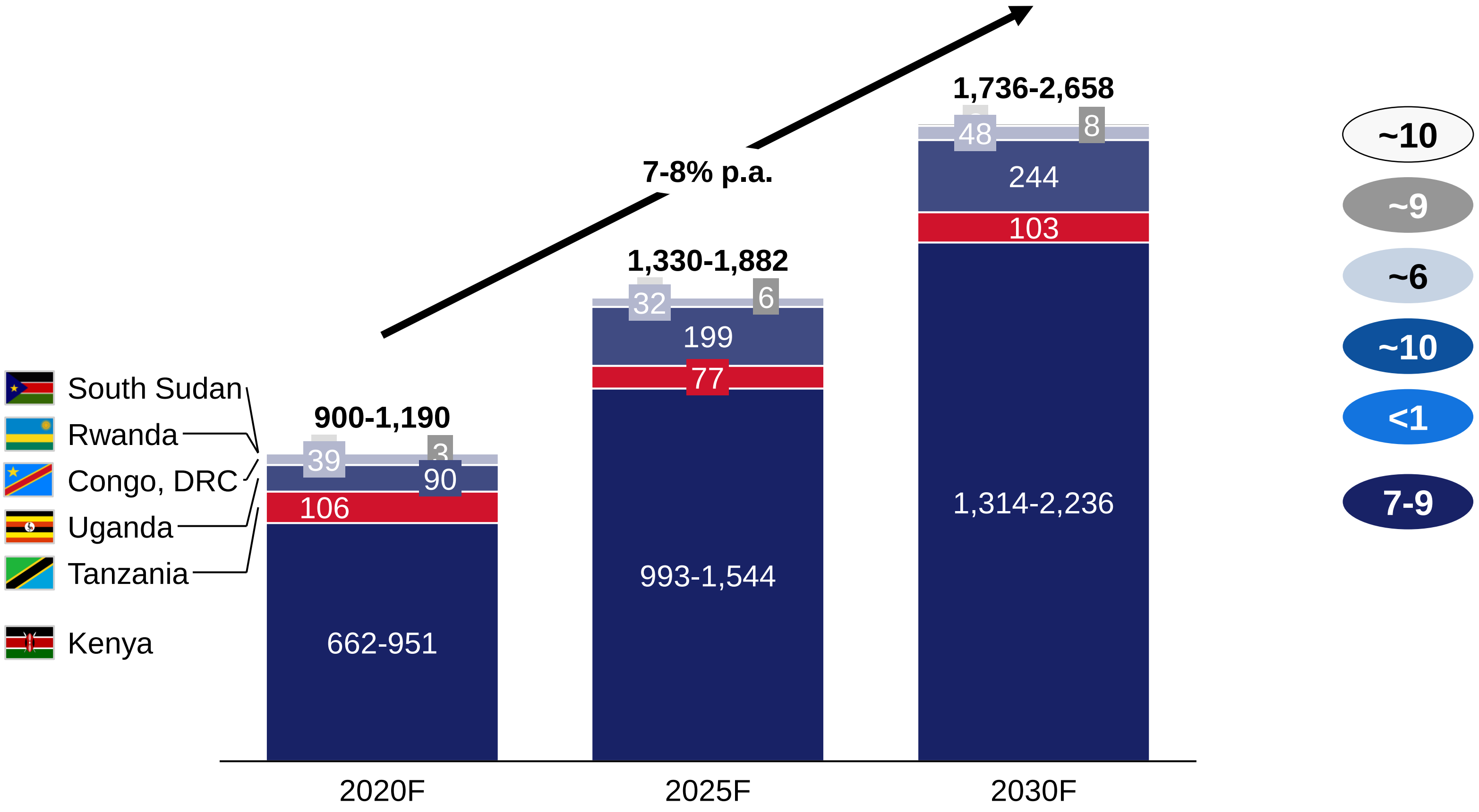
Rebar is expected to continue to have highest demand into 2030 at ~33% of all steel products

The largest growth is expected to be in **tinplate, plate and welded tubes** (19%), and **track material, sections and other bars** (13%)

Billet demand is expected to grow at 7-8% p.a. through 2030

Billet demand in Eastern Africa[1], 2020- 2030 ‘000 MT

CAGR ‘20-’30 , %



Despite a slowdown in construction and industrial activities due to the effects of COVID, **recovery in the construction industry is expected, driving billet demand growth**

Kenya is expected to remain the largest market with over 60% of overall demand by 2030

1.Includes Kenya, Uganda, Tanzania, DRC, Burundi, Rwanda and South Sudan. Estimates for Kenyan demand projected based on bottom up assessment of long products. Demand for other countries based of outside in perspective from JFK
2.Demand for South Sudan and Burundi not included as they are expected to be less than 1,000 MT

Source: Trademap, James F. King (JFK), World Steel Association

Billets in EA are mostly imported from Russia and South Africa, where the BF-BOF process is mostly used, and India, where induction is mostly used

Imported | Locally produced

Country	**Breakdown of billet demand by source,** % of total	**Top import sources[1],** % of total imports	**Local production**
Kenya	Imported 90%, Locally produced 10%	Russia 42; South Africa 29; India 22	Most steel producers own small induction furnaces, using recycled scrap to make billets for internal use Devki Industries plans to construct a steel production plant using DRI/IF technology
Tanzania	Imported 100%	Qatar 31; UAE 23; South Africa 20	Billets are produced locally through small induction furnaces; however, furnaces are extremely small and do not have refining capabilities nor scale
Uganda	Imported 100%	South Africa 93; India 6; Russia 1	Billets are produced locally through small induction furnaces; however, furnaces are extremely small and do not have refining capabilities nor scale Steel and Tube Industries may construct a plant in Uganda to produce billets

>80% of all billets imported into Eastern Africa are from India, Russia and South Africa

Some steel manufacturers in the region produce billets on a very small scale using an induction furnace

Most billets imported into Eastern Africa are manufactured using **the Basic Oxygen Furnace (BF-BOF) process**

- Over 60% of steel production in South Africa and Russia are through BF-BOF

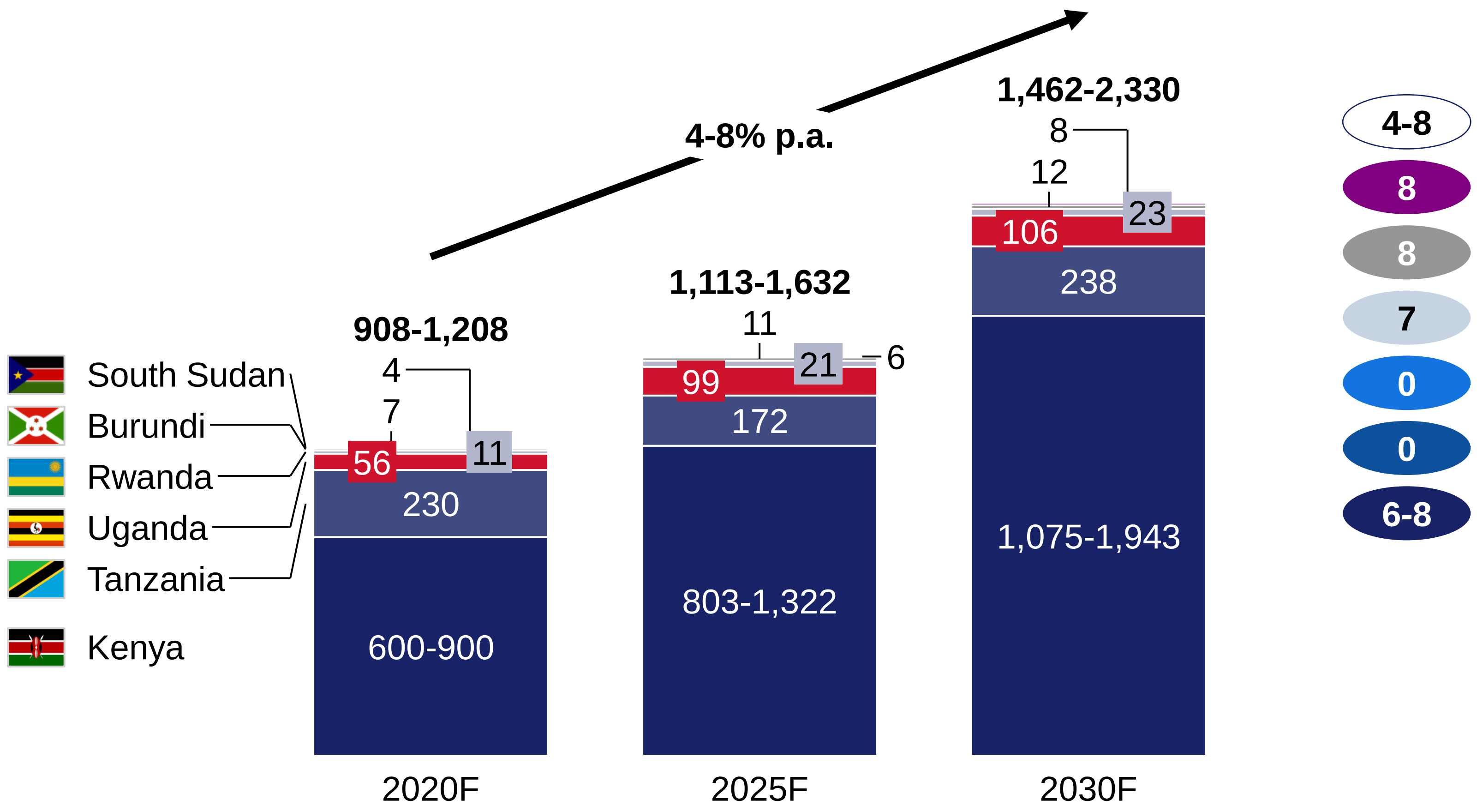
1. Billets from Russia, Ukraine and South Africa are produced using the BF-BOF process, and the quality of billets produced is high. In India, production is mainly done using induction furnaces, and the quality of billets produced is not consistent- the quality of billets produced may not be suitable for infrastructure projects or high-rise buildings

Source: Comtrade, expert interviews, press search

Demand for rebar in Eastern Africa is expected to grow by 4-8% p.a. (2020-2030), driven by new construction projects

Rebar demand in Eastern Africa[1], MT '000

'20-'30 CAGR, %



1. Data for Kenya is based off bottom up estimates from interviews with multiple industry experts while the rest of the countries are outside in estimates based on James F. King and the World Steel Association

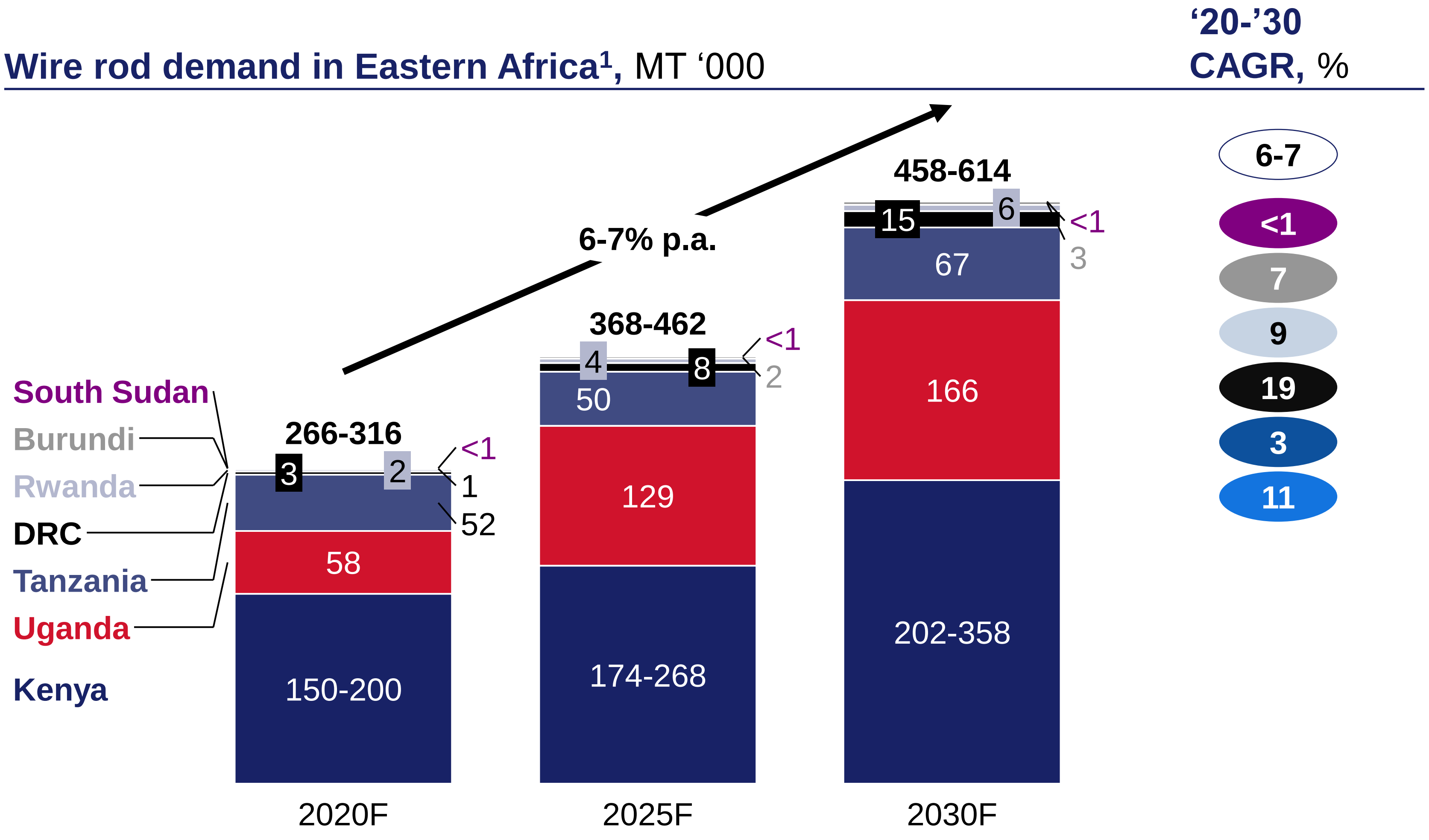
Source: Trademap, James F. King, World Steel Association

Demand for rebar in Kenya is entirely driven by the **construction industry which is expected to grow by 6-8%** in the next 5 years. While growth is projected to drop slightly in 2020, the industry is has mostly been resilient to the effects of COVID-19

A lot of the growth is expected to be driven by **large infrastructure projects – mainly in the public sector** e.g., roads / highway expansion, affordable housing, dam/bridges etc. There are also private players expanding in residential / office space

Some rebar manufacturers have publicly **announced expansion plans** in anticipation of demand growth e.g. Tononoka

Wire rod demand in Eastern Africa is expected to grow by 6-7% p.a. through 2030, driven primarily by construction



Demand for wire rods in Kenya is driven by **construction and engineering industries which is expected to grow** in the next 5 years. While growth is projected to drop slightly in 2020, the industry is has mostly been resilient to the effects of COVID-19

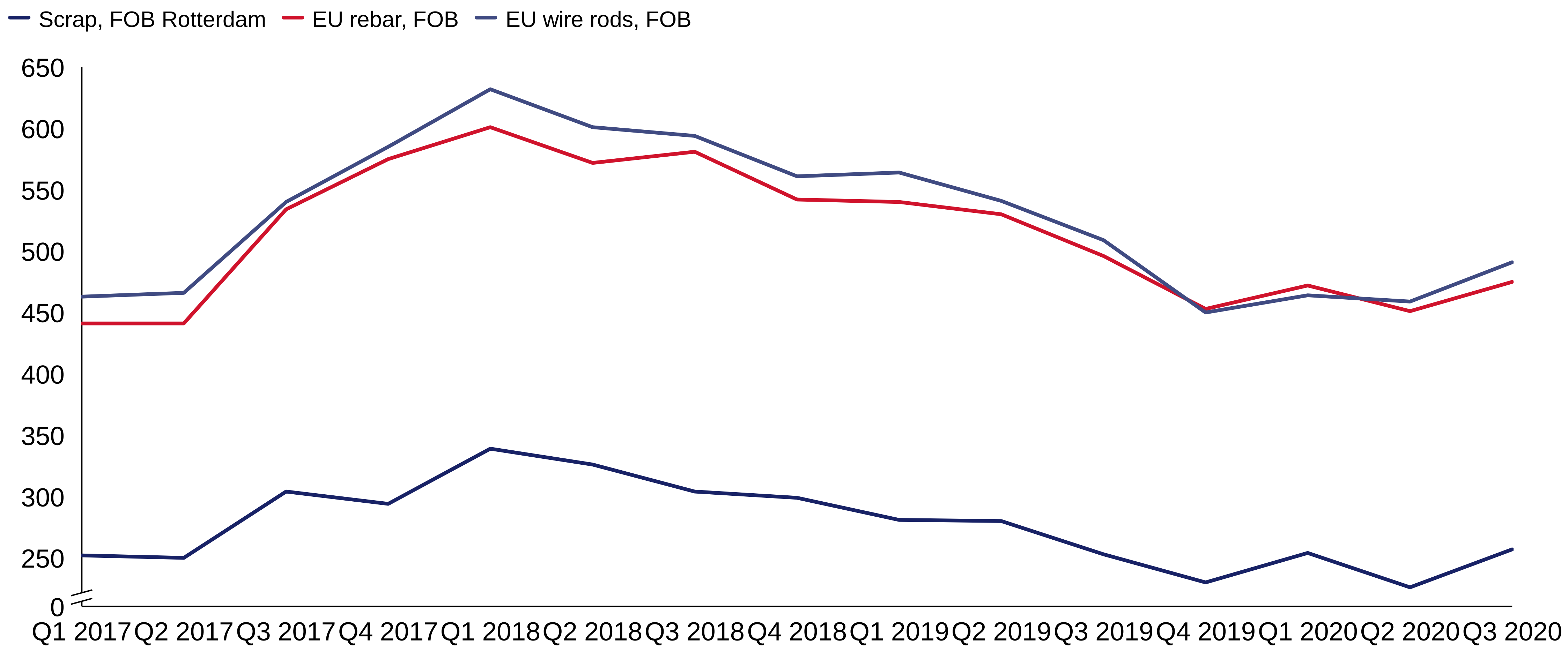
A lot of the growth is expected to be driven by **large infrastructure projects – mainly in the public sector** e.g., roads / highway expansion, affordable housing, dam/bridges etc, as well as in the agricultural sector

1. Data for Kenya is based off bottom up estimates from interviews with multiple industry experts while the rest of the countries are outside in estimates based on James F. King and the World Steel Association

Source: Trademap, James F. King, World Steel Association

Historically, international scrap prices tends to follow the price of steel products

Historical prices for steel products from EU, USD / MT



1. Assumes no changes in import duties and similar shipping costs to Kenya